

IN THE CLAIMS:

Please amend the claims as indicated below.

1. (Currently Amended) A method for decoding a multidimensional code, wherein a
5 multidimensional code symbols comprises a number of symbol components of lower
dimensionality, said method comprising the steps of:

compensating for intersymbol interference caused by previously decoded
multidimensional code symbols; and

- 10 compensating for intrasymbol interference caused by symbol components
within a current multidimensional code symbol.

2. (Currently Amended) The method of claim 1, wherein ~~the symbol components of one~~
multidimensional code symbols are transmitted over more than one symbol interval
associated with one of said symbol components.

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3. (Currently Amended) The method of claim 1, wherein said multidimensional code
symbol comprises a number of transmitted symbol components of lower dimensionality
that exceeds a number of available channels.

- 20 4. (Original) The method of claim 1, further comprising the steps of:

calculating intersymbol interference estimates based on said previously
decoded multidimensional code symbols;

calculating intrasymbol interference estimates based on possible data
symbol values; and

- 25 calculating branch metrics based on a received signal and said intersymbol
interference and intrasymbol interference estimates.

5. (Cancelled).

- 30 6. (Cancelled).

7. (Cancelled).

8. (Cancelled).

5 9. (Original) The method of claim 1, further comprising the step of determining a best surviving path into a trellis state.

10. (Original) The method of claim 1, wherein said multidimensional code is 4D-TCM.

10 11-20. (Cancelled)

21. (Previously Presented) A system for decoding a multidimensional code, said system comprising:

means for compensating for intersymbol interference caused by previously
15 decoded multidimensional code symbols; and

means for compensating for intrasymbol interference caused by symbol
components within a current multidimensional code symbol.

22. (Currently Amended) The method of claim 1, further comprising the step of
20 calculating ~~an error~~ a metric for an initial symbol component using survivor symbols
from a corresponding state to account for intersymbol interference, wherein said metric is
used for the calculation of a branch metric.

23. (Currently Amended) The method of claim 22, further comprising the step of
25 calculating ~~an error~~ a metric for an subsequent symbol component using survivor symbols
from a corresponding state to account for intersymbol interference and using at least one
data estimate to account for intrasymbol interference.

24. (Currently Amended) The method or claim 23, further comprising the step of
30 calculating a combined metric by combining said ~~error~~ metric for said initial symbol
component and said ~~error~~ metric for said subsequent symbol component.

25. (Currently Amended) The method of claim 24, further comprising the step of computing a branch metric for a transition in a multidimensional trellis using said
5 combined ~~error~~-metric.